

WHAT IS CLAIMED IS:

1. A motor control apparatus comprising:

a motor having a rotor;

an encoder for producing a pulse signal in synchronism with rotation of the rotor of the motor that rotates a control object; and

control means for rotating the rotor to a target position by detecting a rotation position of the rotor on the basis of a count of the pulse signal counted by an encoder count by the encoder and sequentially switching a current supply phase of the motor,

wherein the control means corrects, in a period when a deceleration control is performed on the rotor, a phase lead of the current supply phase with respect to a rotation phase of the rotor in accordance with a rotation speed of the rotor.

2. The motor control apparatus according to claim 1, wherein the control means corrects, in the period when the deceleration control is performed on the rotor, the phase lead of the current supply phase in such a direction that braking force acting on the rotor is weakened as the rotation speed of the rotor lowers.

3. The motor control apparatus according to claim 1, wherein the control means corrects, in the period when the deceleration control is performed on the rotor, the phase lead

of the current supply phase taking into consideration, in addition to the rotation speed of the rotor, a rotation angle of the rotor from a present position to the target position.

4. The motor control apparatus according to claim 1, wherein the control means includes:

first current supply phase setting means for setting a current supply phase on the basis of the encoder count in synchronism with pulses of the pulse signal of the encoder during a drive control on the motor; and

second current supply phase setting means for setting a current supply phase on the basis of the encoder count in a prescribed cycle until the rotor is rotated to the target position,

wherein the control means corrects the phase lead of the current supply phase in accordance with the rotation speed of the rotor when each of the first and second current supply phase setting means sets the current supply phase.

5. The motor control apparatus according to claim 1, wherein the motor is a switched reluctance motor.

6. The motor control apparatus according to claim 1, wherein the motor drives a position switching mechanism for switching a gear shift position of an automatic transmission of a vehicle.

7. A motor control apparatus for switching a manipulated position of a position switching mechanism comprising:

a motor having a rotor for driving the position switching mechanism;

rotation angle detecting means for detecting a rotation angle of the rotor of the motor;

switching determining means for determining, on the basis of a detection value of the rotation angle detecting means, whether the manipulated position of the position switching mechanism is within a switching determination range for the target position; and

switching determination range setting means for making the switching determination range wider in a period when current supply to the motor is kept off than in a period when current supply to the motor is on.

8. A motor control apparatus for switching a manipulated position of a position switching mechanism comprising:

a motor having a rotor for driving the position switching mechanism;

rotation angle detecting means for detecting a rotation angle of the rotor of the motor;

learning means for learning an operation reference

position of the motor;

switching determining means for determining, on the basis of a learned value of the learning means and a detection value of the rotation angle detecting means, whether the manipulated position of the position switching mechanism is within a switching determination range for the target position; and

switching determination range setting means for making the switching determination range wider before completion of learning of the operation reference position than after completion of learning of the operation reference position.

9. The motor control apparatus according to claim 8, wherein the switching determination range setting means makes the switching determination range wider in a period when current supply to the motor is kept off than in a period when current supply to the motor is on.

10. A motor control apparatus for switching a manipulated position of a position switching mechanism comprising:

a motor having a rotor for driving the position switching mechanism;

rotation angle detecting means for detecting a rotation angle of the rotor of the motor;

ordinary control means for performing an ordinary control for controlling the motor on the basis of a detection value of

the rotation angle detecting means;

fail-safe control means for performing a fail-safe control for driving the motor irrespective of the detection value of the rotation angle detecting means when an execution condition of the ordinary control is not satisfied;

switching determining means for determining whether the manipulated position of the position switching mechanism is within a switching determination range for the target position on the basis of the detection value of the rotation angle detecting means during execution of the ordinary control, and for doing so on the basis of a drive amount of the motor during execution of the fail-safe control; and

switching determination range setting means for setting the switching determination range to different ranges during execution of the ordinary control and during execution of the fail-safe control.

11. The motor control apparatus according to claim 10, wherein:

the rotation angle detecting means includes an encoder for producing a pulse signal in synchronism with rotation of the rotor of the motor;

the ordinary control means performs a feedback control for rotating the rotor by sequentially switching a current supply phase of the motor on the basis of a count of the pulse signal counted as an encoder count by the encoder;

the fail-safe control means rotates the rotor by sequentially switching the current phase of the motor by supplying a drive signal to a drive circuit of the motor without feeding back information of the encoder count when the execution condition of the feedback control is not satisfied;

the switching determining means determines whether the manipulated position of the position switching mechanism is within the switching determination range for the target position on the basis of the encoder count during execution of the feedback control, and counts pulses of the drive signal supplied to the drive circuit of the motor and determines whether the manipulated position of the position switching mechanism is within the switching determination range for the target position on the basis of a resulting count during execution of the fail-safe control; and

the switching determination range setting means makes the switching determination range wider during execution of the fail-safe control than during execution of the feedback control.

12. The motor control apparatus according to claim 10, wherein the position switching mechanism is a position switching mechanism for switching a gear shift position of an automatic transmission of a vehicle.

13. The motor control apparatus according to claim 7, wherein the position switching mechanism is a position switching mechanism for switching a gear shift position of an automatic transmission of a vehicle.

14. The motor control apparatus according to claim 8, wherein the position switching mechanism is a position switching mechanism for switching a gear shift position of an automatic transmission of a vehicle.